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For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: REGULATION OF KINASE, 'REGULATED IN COPD KINASE' (RC KINASE)

(57) Abstract: Reagents which regulate human RC Kinase activity and reagents which bind to human RC Kinase gene products can be used to regulate this protein for therapeutic effects. Such regulation is particularly useful for treating chronic obstructive pulmonary disease, asthma, cancer, and diseases in which cell signaling is defective.

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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C12N9/02 A61K38/43

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, Sequence Search, EMBL, PAJ, WPI Data, EMBASE, BIOSIS

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 02/33099 A (WALIA NARINDER K; GURURAJAN RAJAGOPAL ; INCYTE GENOMICS INC (US); BAUG) 25 April 2002 (2002-04-25) page 64, line 9 - line 10; sequence 6	1-26
X	US 2003/054529 A1 (YAN CHUNHUA ET AL) 20 March 2003 (2003-03-20) figures 2a, 3	1-26

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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- * & * document member of the same patent family

Date of the actual completion of the international search

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23/11/2004

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	<p>DATABASE EMBL 'Online! 9 September 2003 (2003-09-09), "Homo sapiens cDNA FLJ16628 fis, clone TESTI4017763, moderately similar to Mitogen-activated protein kinase kinase 3 (EC 2.7.1.-)." XP002304384 retrieved from EBI accession no: EM_PRO:AK122935 Database accession no. AK122935 the whole document</p>	1-26
A	<p>DATABASE EMBL 'Online! 14 December 1999 (1999-12-14), "Homo sapiens BAC clone RP11-341H1 from 2, complete sequence." XP002304385 retrieved from EBI accession no. EM_PRO:AC016725 Database accession no. AC016725 abstract</p>	
A	<p>WO 03/018786 A (BAYER AG ; LIOU JIING-REN (US)) 6 March 2003 (2003-03-06) page 53, line 19 - line 21</p>	
A	<p>RAHMAN IRFAN: "Oxidative stress and gene transcription in asthma and Chronic Obstructive Pulmonary Disease: Antioxidant therapeutic targets." CURRENT DRUG TARGETS - INFLAMMATION AND ALLERGY, vol. 1, no. 3, September 2002 (2002-09), pages 291-315, XP008038264 ISSN: 1568-010X figures 4,5 page 302, right-hand column, last paragraph - page 303, left-hand column, paragraph 2</p>	
A	<p>PUCHELLE E ET AL: "Chronic obstructive pulmonary disease: an old disease with novel concepts and drug strategies" TRENDS IN PHARMACOLOGICAL SCIENCES, ELSEVIER TRENDS JOURNAL, CAMBRIDGE, GB, vol. 22, no. 10, 1 October 2001 (2001-10-01), pages 495-497, XP004307600 ISSN: 0165-6147 the whole document</p>	

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP 2004/006474

Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☒ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
see FURTHER INFORMATION sheet PCT/ISA/210
2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box II.1

Although claims 14, 17, 18 are directed to a diagnostic method practised on the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.

Although claims 19-23 are directed to a method of treatment of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
WO 0233099	A	25-04-2002	AU	2735202 A	29-04-2002
			CA	2425963 A1	25-04-2002
			EP	1373517 A2	02-01-2004
			WO	0233099 A2	25-04-2002

US 2003054529	A1	20-03-2003	US	6582946 B1	24-06-2003

WO 03018786	A	06-03-2003	WO	03018786 A2	06-03-2003

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